

Shreyas Bakare

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Education

Indian Institute of Science Education and Research (IISER)

BS-MS Dual Degree [physics majors]

Pune, India

Sept. 2020 - Current

Fellowship

Innovation in Science Pursuit for Inspired Research (INSPIRE)

- Received scholarship of INR 4,00,000 (INR 80,000 per annum)

Dept. of Science and Technology (DST),

Govt. of India

Jun. 2020 - Jun. 2025

Research Experience

Measurement of charge misidentification rates at CMS detector at LHC, CERN

IISER Pune

Supervisor : Prof. Sourabh Dube.

Jan. 2023 - Present

- Measuring the charge misidentification rates for electrons and muons in proton-proton collisions at 13 TeV at the CMS detector.

Basic data analysis at CMS detector at LHC, CERN

IISER Pune

Supervisor : Prof. Sourabh Dube.

Aug. 2022 - Jan. 2023

- Presented the paper 'Measurement of the top-quark mass in the $t\bar{t}$ dilepton channel using the full CDF Run II data set.'
- Learned about basics of Unix operating systems, and how to use Root and GitHub
- Carried out analysis of Monte Carlo simulation samples of the Drell-Yan and $t\bar{t}$ processes.
- Conducted a study to distinguish simulations of $t\bar{t}Z$, WZ , ZZ processes using kinematic variables such as masses and taggers such as b-tagging.

Fundamentals of Relativity and Quantum Mechanics

IISER Pune

Supervisor : Prof. Ashish Arora.

May 2022 - Aug. 2022

- Learnt about relativity and the quantisation effects in 2D quantum well & calculated the transition energy of electron for $Al_{0.3}Ga_{0.7}As/GaAs$ junction by writing a Python code to solve the finite quantum well problem in semiconductors.

Other Relevant Experience

Research and Development Associate

AIC-SEED, IISER Pune

14 Trees Foundation

May 2022 - Aug. 2022

- Received summer internship scholarship of INR 50,000.
- Built fully automated mailing system using google scripting and integrated it with the database.
- Created a simplified & dynamic view of the database using Notion. And database management using MongoDB.

YouTube

youtube.com

STEM student mentorship & Fun science activities

Since March 2021

- Scientific interviewer of Chitraang Murdia, UC Berkeley, for YouTube series 'The Unconventional Reflections' by Gramoly. The interview has over 50,000 views on YouTube.
- Created dedicated YouTube channel for videos about STEM, IISERs and IISER Aptitude Tests.

Fingerprint based door locking system using Arduino NANO

IISER Pune

Supervisor : Prof. Shouvik Datta.

Aug. 2022 - Nov. 2022

- Built a higher level security system using fingerprint as a pass key for the door lock with the help of Arduino Nano, fingerprint sensor and solenoid lock.

Donation Management Software

IISER Pune

Cultural fest organised by Marathi Club

Jul. 2022 - Sep. 2022

- Solved the issue of donation money scam by implementing automated email receipt system by developing a Donation management software using google app script and google sheets.
- Was able to increase the donations by roughly 200% than previous years.

Skills

Software	Root, Arduino, MS Office, DaVinci Resolve
Programming	C++, LaTeX, Python, GoogleScript
Languages	English, Hindi, Marathi, Sanskrit

Workshops

Summer Mini-Course : Understanding Experimental High Energy Physics Prof. Sourabh Dube, IISER Pune	2022
QPrep Workshop & QBronze Diploma QIndia's Summer of Kyu	2022
NeW IPR 2022 e-Workshop CSIR's national e-workshop on Innovation & Intellectual Property Rights	2022
Fundamentals of Astronomy B. M. Birla Planetarium & Amateur Astronomy Society, Jaipur	2021
Gravitational Wave Analysis and EM Transients Techfest IIT Bombay	2021
Science Enrichment Camp Dr Homi Bhabha Research Centre, Mumbai, India	2014

Honors & Awards

State Rank 1, National Physics Graduate Examination (NGPE) Indian Association of Physics Teachers	IISER Pune Jan. 2022
Gold medal, 24th National Children's Science Congress(NCSC) Dept. of Science and Technology, Govt. of India	VIIT Baramati Dec. 2016
• Awarded Gold medal for successful project & survey based report on Recycling of Thermocol using 'like dissolves like' principle at the 5 day annual session of 24th NCSC from among 8 lakh participants.	
Inspire Award : Received scholarship of INR 5,000 Dept. of Science and Technology, Government of India	Kolhapur, India 2015
Gold Medal, Dr Homi Bhabha Young Scientist Examination The Mumbai Science Teachers' Assoc.	Mumbai, India. 2013-2014
• Awarded Gold medal for successful project on 'Environment in day-to-day Life' from over 45,000 participants.	

Extracurricular Activity

Writer	Science Club : Helicase Magazine , Writer & Animator : Two articles & an animated video	2021- 2022
Core Team	TEDxIISER Pune , Media Coordinator	2022- 2023
Founder	A₃THA: The Finance Club , Head : Outreach, Publicity & Media Dept.	2021- 2022
Editor	Drama Club , Video Editor & Animator : Produced 4 short films	2021- 2022
Volunteer	Marathi Club , Played flute & Built Donation Management Software	2021- 2023
Quiz	Rank 1 (Scholarship of INR 3,000) , Championship by Dr A. P. J. Abdul Kalam Vigyan Manch	2019
NCC	National Cadet Corps , Attended Annual Training Camp, 3 MAH Air Squadron NCC, India	2015-2018